

CLAIMS

1. A valve gear of an internal combustion engine converting a rotational motion of an electric motor into a linear motion by a cam, and driving a valve of a cylinder so as to be opened and closed based on the linear motion, the valve gear comprising:

electric motor control means capable of actuating the electric motor in a rocking drive mode in which a rotating direction of the cam is changed during a lift of the valve,

wherein the electric motor control means comprises rocking control means for controlling a motion of the electric motor such that the cam starts rotating before the valve starts lifting in the rocking drive mode.

2. The valve gear according to claim 1, wherein the rocking control means controls a rotating speed of the cam in the rocking drive mode such that the rotating speed of the cam at the time of starting the lift of the valve becomes higher than a basic speed obtained by dividing a rotating speed of an engine output shaft of the internal combustion engine by a rotation number of the engine output shaft from a start of an intake stroke to an end of an exhaust stroke.

3. The valve gear according to claim 1, wherein the rocking control means alternately uses both sides with respect to a nose of the cam so as to lift the valve, by rotating the cam in the same direction until the next change during the lift, after changing the rotating direction of the cam during the lift of

the valve.

4. A valve gear of an internal combustion engine converting a rotational motion of an electric motor into a linear motion by a cam, and driving a valve of a cylinder so as to be opened and closed based on the linear motion, the valve gear comprising:

electric motor control means capable of actuating the electric motor in a forward rotating drive mode in which the cam is continuously rotated in one direction,

wherein the electric motor control means comprises forward rotating control means for changing a rotating speed of the cam before the valve starts lifting in the forward rotating drive mode so as to change a working angle of the valve.

5. The valve gear according to claim 4, wherein the forward rotating control means changes the rotating speed of the cam to a predetermined speed which is different from a basic speed obtained by dividing a rotating speed of an engine output shaft of the internal combustion engine by a rotation number of the engine output shaft from a start of an intake stroke to an end of an exhaust stroke, before starting the lift of the valve, and rotates the cam at the predetermined speed during the lift of the valve.

6. A valve gear of an internal combustion engine converting a rotational motion of an electric motor into a linear motion by a cam, and driving a valve of a cylinder so as to be opened

and closed based on the linear motion, comprising:

electric motor control means capable of actuating the electric motor in each of a forward rotating drive mode in which the cam is continuously rotated in one direction, and a rocking drive mode in which a rotating direction of the cam is changed during a lift of the valve,

wherein the electric motor control means comprises changing control means for controlling a motion of the electric motor in at least any one of the rocking drive mode and the forward rotating drive mode such that a time area obtained by integrating a lift amount of the valve approximately coincides between before and after changing the mode, at the time of changing the rocking drive mode and the forward rotating drive mode.

7. The valve gear according to claim 6, wherein the changing control means control the motion of the electric motor in the rocking drive mode such that a maximum lift amount of the valve in the rocking drive mode is increased according to being closer to the changing time of the mode.

8. The valve gear according to claim 7, wherein the changing control means controls an opening degree of a throttle valve of the internal combustion engine such that the opening degree of the throttle valve is reduced according to an increase of the maximum lift amount.